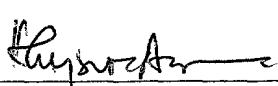


(Rel.83-4/00 Pub.605)

FORM 13-7

529 Rec'd PCT/PTC 07 JUN 2000

FORM PTO-1390 (REV 12-29-99)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTORNEY'S DOCKET NUMBER 04872.P00IUS	
TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371				U.S. APPLICATION NO. (If known, see 37 CFR 1.5) 09/581306	
INTERNATIONAL APPLICATION NO. PCT US00/07093		INTERNATIONAL FILING DATE March 17, 2000		PRIORITY DATE CLAIMED March 19, 1999	
TITLE OF INVENTION Distributed System For Conducting Physical Delivery Mail Service Over the Internet					
APPLICANT(S) FOR DO/EO/US Zehr et al.					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
<p>1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371.</p> <p>2. <input type="checkbox"/> This is a SECOND or SUBSEQUENT submission of items concerning a filing under 35 U.S.C. 371.</p> <p>3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).</p> <p>4. <input type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</p> <p>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))</p> <p>a. <input type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</p> <p>b. <input type="checkbox"/> has been transmitted by the International Bureau.</p> <p>c. <input checked="" type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</p> <p>6. <input type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</p> <p>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))</p> <p>a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</p> <p>b. <input type="checkbox"/> have been transmitted by the International Bureau.</p> <p>c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</p> <p>d. <input checked="" type="checkbox"/> have not been made and will not be made.</p> <p>8. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</p> <p>9. <input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</p> <p>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</p> <p>Items 11. to 16. below concern document(s) or information included:</p> <p>11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</p> <p>12. <input type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</p> <p>13. <input type="checkbox"/> A FIRST preliminary amendment. <input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment.</p> <p>14. <input type="checkbox"/> A substitute specification.</p> <p>15. <input type="checkbox"/> A change of power of attorney and/or address letter.</p> <p>16. <input type="checkbox"/> Other items or information:</p>					

U.S. APPLICATION NO. (37 CFR 1.53) 09/581306		INTERNATIONAL APPLICATION NO. PCT US00/07093		ATTORNEY'S DOCKET NUMBER 04872.P001 US	
17. <input checked="" type="checkbox"/> The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)): Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO \$970.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO \$840.00 International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO \$690.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4) \$670.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4) \$96.00 ENTER APPROPRIATE BASIC FEE AMOUNT =				CALCULATIONS PTO USE ONLY <div style="font-size: 1.5em; font-weight: bold;">416 Rec'd PCT/PTO 07 JUN 2000</div>	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	- 20 =		X \$18.00	\$	
Independent claims	- 3 =		X \$78.00	\$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$260.00	\$	
TOTAL OF ABOVE CALCULATIONS =				\$ -0-	
Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28).				\$ <380.00>	
SUBTOTAL =				\$ 380.00	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	
TOTAL NATIONAL FEE =				\$ 380.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$ 40.00	
TOTAL FEES ENCLOSED =				\$ 420.00	
				Amount to be refunded:	\$
				charged:	\$
a. <input checked="" type="checkbox"/> A check in the amount of \$ <u>420.00</u> to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>02-2666</u> . A duplicate copy of this sheet is enclosed.					
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO Aloysius T.C. AuYeung Blakely Sokoloff Taylor & Zafman, LLP 12400 Wilshire Boulevard Seventh Floor Los Angeles, California 90025					
				SIGNATURE	NAME
					Aloysius AuYeung
				REGISTRATION NUMBER	35432

Form PTO-1390 (REV 12-29-99) page 2 of 2

(Transmittal Letter to the United States Designated Office (DO/US)—Entry Into National Stage under
35 U.S.C. 371—PTO 1390 [13-7]—page 2 of 2)

PTO/BB/10 (1-99)
 Approved for use through 09/30/2000. OMB 0851-0031
 Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE
 Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

STATEMENT CLAIMING SMALL ENTITY STATUS		Docket Number (Optional)
(37 CFR 1.9(f) & 1.27(c)) -- SMALL BUSINESS CONCERN		004872.P001 US

Applicant, Patentee, or Identifier: Wilson Zehr, et al.

Application or Patent No.: PCT/US00/07093

Filed or Issued: March 17, 2000

Title: DISTRIBUTED SYSTEM FOR CONDUCTING PHYSICAL DELIVERY MAIL SERVICE OVER

I hereby state that I am

☐ the owner of the small business concern identified below:

☒ an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF SMALL BUSINESS CONCERN Zairmail

ADDRESS OF SMALL BUSINESS CONCERN 2800 NW 29th Avenue, Portland, Oregon 97210

I hereby state that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121 for purposes of paying reduced fees to the United States Patent and Trademark Office. Questions related to size standards for a small business concern may be directed to: Small Business Administration, Size Standards Staff, 409 Third Street, SW, Washington, DC 20416.

I hereby state that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention described in:

☐ the specification filed herewith, with title as listed above.

☒ the application identified above.

☐ the patent identified above.

If the rights held by the above identified small business concern are not exclusive, each individual, concern, or organization having rights to the invention must file separate statements as to their status as small entities, and no rights to the invention are held by any person, other than the inventor, who could not qualify as an independent inventor under 37 CFR 1.9(c) if that person made the invention, or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d), or a non-profit organization under 37 CFR 1.9(e).

Each such person, concern or organization having any rights in the invention is listed below:

☐ No such person, concern, or organization exists.

☐ Each such person, concern or organization is listed below.*

Separate statements are required from each named person, concern or organization having rights to the invention stating their status as small entities (37 CFR 1.9(e)).

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

NAME OF PERSON SIGNING: Wilson Zehr

TITLE OF PERSON OTHER THAN OWNER: President

ADDRESS OF PERSON SIGNING: 18771 SW Frank Court, Aloha OR 97007

SIGNATURE: W. Zehr DATE: 6/6/00

DISTRIBUTED SYSTEM FOR CONDUCTING PHYSICAL DELIVERY
MAIL SERVICE OVER THE INTERNET

BACKGROUND OF THE INVENTION

5 This invention relates generally to a mail delivery system conducted in part over a wide area network (WAN) and more particularly to an integrated system for enabling users to transmit messages electronically over the Internet, redirecting the electronic message to an appropriate printing service, and effecting physical delivery of the printed message to the intended recipient at the recipient's physical address.

10 Traditional mail service, such as that offered by the United States Postal Service, allows users to send physical objects from a sender to a recipient. If a sender wishes to send a greeting card to a relative, for instance, the sender typically purchases the preprinted card from a store, writes a personal message within the card, places the card in an envelope addressed to the recipient, and drops the sealed and stamped envelope in a mailbox. At his point, the mail
15 service collects the envelope from the mailbox, transports the mail to a Post Office where human beings or, more recently, electronic sorting equipment physically distributes the envelopes by destination. Once the destination of the envelope is known (the recipient's address), the envelope is physically transported by various means to a Post Office which services the recipient's address.

20 The time required to deliver mail increases with the distance between the sender's Post Office and the recipient's Post Office. The delivery time is further affected by the status of either of the Post Offices – i.e. whether it is “hub” that can transfer mail directly to the desired recipient Post Office. In this way, the organization of Post Office branches is like the airport system whereby the further two locations are from one another the longer the flight time;
25 whereby the flight time increases if an airline passenger is required to make several indirect stops on the way to his or her final destination.

The advent of the Internet has made it possible to send and receive messages electronically using a system called “e-mail”. Instead of physical addresses, e-mail addresses are used which uniquely identify a person or group that shares a particular e-mail account. As e-mail is electronic, messages can be sent nearly instantaneously from one e-mail account to
30 another at the touch of a button. Typically, a user's e-mail account is stored on a server that is coupled to the Internet. The e-mail recipient need not be logged-in to his e-mail account or even his computer. Instead, the e-mail is stored for later retrieval at the recipient's convenience.

E-mail has several advantages over traditional physical mail service. First, e-mail can be delivered much more quickly owing to the electronic nature of the message. Second, e-mail is much more economical to deliver since the digital signals which make up the e-mail are much easier to transport over long distances (as long as the Internet infrastructure is in place) than a physical object such as a package. Finally, an e-mail message can easily be delivered to more than one recipient by simply typing in additional e-mail addresses – no additional physical copies of the message, extra envelopes or stamps are necessary.

E-mail does have some drawbacks compared to traditional mail service. First, e-mail requires that both the sender and the recipient have (or have access to) a computer. While everyone has a physical address where they are located or can receive physical mail, not everyone has access to a computer and only a subset of those people actually have an e-mail account. Second, the tactile satisfaction of receiving a physical message such as a greeting card is lost. Instead, a recipient would be required to print the e-mail message to a local printer connected to the recipient's computer that accessed the e-mail account. Unless the recipient had access to a professional printer costing many thousands of dollars, it would be impossible to obtain the same quality as from store-bought cards. Even if the recipient were able to print out the message, the printing cost (especially if a full color message) might equal or exceed the cost of the stamp to send the message by regular mail.

One method proposed to create mail objects from e-mail messages is described in U.S. Patent No. 5,805,810 to Maxwell in which a NetGram system receives e-mails addressed to the netgram.com domain, translates the recipient address into a physical delivery address based upon a database linked to the particular sender, and prints the e-mail contents and physical address for mailing within the U.S. Postal Service. Although the system and methods described within the '810 patent can allow one to avoid using international postal services by having the e-mails printed and mailed within the destination country, it still requires that postal fees be paid by the sender and a complicated e-mail verification scheme.

Accordingly, a need remains for a mailing system that integrates the advantages of both the Internet and the web (World Wide Web) with that of the more traditional mail services to improve the dissemination of information from senders to recipients.

SUMMARY OF THE INVENTION

A mail delivery system constructed according to a preferred embodiment of the present invention is comprised of a service pod for receiving and processing electronic messages from a sender and a plurality of printing stations, a selected one of which is adapted to receive the

processed message from the service pod and print the message and related materials on printable medium. The printed and addressed message is then delivered to the Post Office or similar physical mail delivery service which then delivers the message to the intended recipient designated by the sender. The service pod includes a query engine in two-way communication with LPF servers at each of the printing stations over a wide-area-network (WAN) such as the Internet to dynamically determine the appropriateness (in terms of capability, capacity, etc.) of the particular print station to complete and deliver to the Post Office a particular print job. The service pod further includes an ad compiler and mail object builder adapted to insert targeted advertising within the electronic message and arrange the advertising, any additional value-added content, the message, and destination address, into a formatted mail object to be printed. Advertisements are selected based upon recipient demographics stored internally at the service pod and externally available through known information sources, and upon ad affinity with other advertisements that may be presented together in the same mail object. In an alternate method for selecting advertisements for printing on the printed object, records within a recipient database at the service pod site can be accessed to determine a historical record of which advertisements have already been sent to avoid duplication. Advertisements can also be manually selected by the mail sender to supplement the printing and mailing costs of the mail object.

The foregoing and other objects, features and advantages of the invention will become more readily apparent from the following detailed description of a preferred embodiment of the invention that proceeds with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram illustrating an electronic message to physical mail delivery system according to a preferred embodiment of the invention.

FIG. 2 is a block diagram of software components of the Zairmail system.

FIG. 3 is a flow diagram of the query engine shown in FIG. 2 adapted to select an appropriate local production facility (LPF) according to a preferred embodiment of the invention

FIG. 4 is a block diagram of software components of the Zairmail mail object compiler implemented according to a preferred embodiment of the invention.

FIG. 5 is a flow diagram illustrating the process steps for selecting appropriate directed advertising content to include within the mail object.

FIG. 6A-6E are lists of advertisers sorted according to one embodiment of the invention.

FIG. 7A-7D illustrate different arrangements in which advertisements can be placed on printed matter according to the invention.

FIG. 8 is a block diagram of an LPF according to a preferred embodiment of the invention.

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DETAILED DESCRIPTION

FIG. 1 is a block diagram of an electronic message to physical mail delivery system 10 implemented according to a preferred embodiment of the invention. The system contemplates a mail sender 12 preparing an electronic message which is then processed, shunted to an appropriate printing facility (chosen based on such attributes as proximity to the intended recipient of the message, capacity, capability, etc.), and then printed out by system 14 (Zairmail system). A printed mail object including the message is then delivered to the postal service 16 or other like organization/company for physical delivery of the printed object to the intended mail recipient 18. Although the invention is directed primarily to traditional printed messages, the system herein described can be used in conjunction with any items on which specified printed materials appear, such as T-shirts, posters, mugs, etc.

System 10 contemplates supplementing mailing costs through advertising content from advertisers 20 placed within the printed mail object. The selection and placement of appropriate advertisements within the printed message forms an additional portion of the inventive physical mail delivery system 10 and is described in more detail below with reference to FIGs. 5, 6A-6E, and 7A-7D. Further content can be added to the message supplied from value-added content providers 22. The value-added content to the message can for example include limited edition artwork, joke or cartoon of the day, crossword puzzles, and others. As contemplated within an embodiment of the invention, the mail sender 12 can accumulate points for using the Zairmail system which can then be exchanged for goods or services, as from gift supply partners 24, advertisers 20, or others.

The mail sender 12 can compose and send messages electronically to the Zairmail system 14 in three different formats. Referring to FIG. 2, the message can be intercepted at an intermediate node such as message transfer handler 26 of the Zairmail system 14 by an e-mail subsystem 28, via web site interface 30, or through the printer driver interface 31.

Turning first to the e-mail interface, a user composes an e-mail message and addresses the e-mail to a recipient at a particular domain, e.g. mom@Zairmail.com. The e-mail message sender is identified by the "From" line of the e-mail message and the recipient's physical address and other demographic statistics are looked up in a user database 32. The particulars of

this type of physical address look-up system are not disclosed here as such a system can be constructed with reference to U.S. Patent No. 5,805,810.

The second type of interface contemplates a mail sender logging onto a Web site located on a server of the Zairmail system 14. The mail sender can store a personalized address book within a user database 32 for use and retrieval later. Once logged on to the system, the user is presented with a blank form in which he or she can designate a recipient, the text of the message, select whether and which advertisements to include within the printed mail object, select whether to send printable coupons, and other items. Delivery options, such as certified mail, registered mail, overnight or immediate delivery, or message archiving, can also be specified by the Zairmail system user.

The printer driver interface 31 interacts with printer drivers downloaded to the user's machine. Any printing to the devices represented by Zairmail printer drivers will be sent to the printer driver interface for processing. The users can use any one of their desktop applications to compose a message, and print it to the Zairmail printer. When the user is connected to the Internet, the Zairmail printer drivers will then connect to the printer driver interface 31 and transmit the message on to service pod 34.

The service pod 34 operates to select the appropriate Local Production Facility (LPF) to which the electronic message is shunted and ultimately printed out for mailing with the U.S. Post Office or similar physical mail delivery service. The service pod includes user database 32, a recipient database 36 and a query engine 38. The user database 32 includes address book information for the mail sender 12 in order to generate physical address information used by the query engine. The user database can store archived messages sent over a particular time period. The recipient database 36 includes information on the recipient such as personal demographics and whether that particular recipient has opted to block messages sent through the Zairmail system 14, block certain advertisements from being attached to messages sent through the Zairmail system, or block messages sent from a particular user of the Zairmail system. Demographic information for the receiver is compiled internally, as by querying the receiver's profile as listed within the user database 32, and externally from external data sources such as those available through Experian Information Solutions, Inc. Information within the recipient database is periodically queried to generate accompanying printed material with the electronic message, such as directed advertisements, as discussed further below.

Query engine 38 operates to query distributed LPFs, such as LPF 40 and 42, geographically separated within LPF space 44, and determine their appropriateness for the job of printing the electronic message in physical form. By way of example, LPF 40 may be located

In step 60, a "goodness factor" is determined for each LPF on the modified candidate list based upon attributes of the LPF that might affect that LPF's ability to successfully carry out the requested print job on time. Examples of such attributes include proximity to the deliver point (zip code), the capability of the printers and other facilities in the LPF (can it actually do the job, e.g., print materials [paper, T-shirts, posters] with the appropriate color and size available), the LPF capacity (the estimated lag time for job completion), the cost bid by the LPF per impression, and the shipping capability to the post office (how fast the printed mail object can be delivered to the post office). The ideal LPF would be the closest, physically or by means of expedited delivery mechanisms, to one to the final destination with the right equipment and supplies to complete the job and a very low time-to-print lag. Less desirable LPF factors that are communicated to the query engine responsive to the LPF query can include situations where the LPF is down either because of equipment failure or connectivity problems, the LPF may be loaded down with lots of jobs, the LPF may not have the proper facilities and/or supplies to complete the print job, and the vehicles and people may not be available to deliver the messages to the Post Office. An enhanced implementation of an LPF selection for larger jobs could be that LPFs may compete for a particular job based on available (otherwise wasted) capacity and capability as well as having "insert" advertisements that need to be sent for high-paying advertisers.

The cost attribute can be changed by the LPF operator via a web interface with service pod 34 to change one or more static attributes stored within and considered by the query engine 38 when selecting the appropriate LPF to send the print order to. In the alternative, the LPF operator can enter or modify the cost attribute (e.g. the amount of money the LPF will charge to complete a certain task such as printing a full color, two-sided greeting card, sorting, processing, stamping, and delivering to the Post Office) locally at the LPF server 96, which communicates with the service pod 34. The LPF attributes are stored within an attribute database at the LPF server responsive to automatic queries within the local network of equipment at the LPF site as well as manually entered data. For instance, if an LPF facility is running at low capacity, the LPF operator can lower his bid to complete certain types of jobs, thereby increasing his LPF's goodness factor and improving the chance that his LPF will be selected to perform a certain print command by the query engine 38.

Once the goodness factor has been calculated for each LPF in step 60, the LPFs on the modified candidate list are sorted in step 62 to determine the LPF with the highest goodness factor – that is, the most appropriate LPF for the print job and delivery of the printed mail object

image database 68. The advertising user can select demographic variables, time frames in which the advertisement is active, and the maximum number of impressions per receiver and over a particular time-frame. By way of example, an advertiser for a luxury car company can choose to advertise only to those individuals living in ZIP codes wherein the average home prices is over \$300,000. By using both internal and external databases, such limitations can be addressed. Advertiser-set limits are stored within the ad selector 74 and used in the processing steps discussed below to select the most appropriate and lucrative advertising content to include within the mail object.

The ad selector 74 operates in conjunction with the advertisement databases 68, 70 and ad counter 72 to determine which advertisements will be printed. The ad selector can also operate in conjunction with the recipient database to prevent repeat impressions of the same advertisement with the same recipient within a certain period of time. One method for selecting advertisements is shown in FIG. 5 in which the universe of ready advertisements stored in the system are identified in step 78. These ready advertisements are those that have not expired, with a current print count stored within the counter 72 less than the print count paid for by the advertiser. Each advertisement has a base priority associated with it (step 80) that, for instance, can be based on how much the advertiser has paid for the space. The higher the amount paid, the higher the priority. Size of the advertisement can be factored in to this base priority as well as well as factors considering whether certain ads are set to expire sooner than others (so that the ad limits can be used prior to expiration). This base priority can be modified in step 82 according to how closely the mail recipient 18 matches the target market preselected by the advertiser through the ad order processor 76. The ready ads are sorted by their modified priority in step 84 to yield a modified ad list.

Finally, the ads on the modified ad list are sorted a second time by ad affinity in step 86. Ad affinity operates by, for instance, looking at the ads located above and below the particular ad on the modified list and apply preestablished factors based, not on the designated mail recipient, but on the advertisements that would also appear on the mail object with the one ad. For instance, the listing of an advertisement for a clothing store in the top slot of the modified list may act to negatively affect the co-listing on the mail object of an ad for a competing clothing store. Likewise, an ad for a health food store can elect not to ever be listed with advertisements for alcohol or tobacco products. Ad affinity can also be established to positively influence the chance that a certain type of advertisement, such as a car rental ad, will be paired with another type of ad, such as an airline ad, in either the same mail object or to the same recipient over a period of time.

Other factors that can affect the priority is the willingness of an advertiser to “bid-up” for a spot – meaning whether an advertiser has indicated within the ad order processor 76 that placement of certain ads to certain types of people are worth more than others. This is indicated as one of the attributes of the advertisement as well as what the bid increments are and the ceiling value for the bid. If no ads match the demographics for a particular recipient, the ad compiler 86 operates in one embodiment of the invention to pick from low-priority or default advertisers that pay very little or non-profit, community service or interesting articles, that are willing to wait until no other high-paying ads are competing for the space.

One issue that may occur under the present system is starvation – that is, the chance that certain low-bid ads will never be printed and may be intentionally locked out by competing advertisers. A “fairness” routine is then employed by the ad compiler 66 to ensure that a few number of very high-paying advertisers cannot block other advertisements from being printed. One example of an implementation of the fairness routing is where the base priority of all losing advertisements are incremented so that their chance of being chosen in a subsequent selection round is increased. An alternative is providing a “rest-period” for advertisements, where after a certain number of “wins”, the advertisements are taken out of the ready advertisements group and are required to rest for a few rounds before they are again qualified to participate in the ad selection process.

Once the modified list is reorganized by factoring in ad affinity, then the appropriate number of ads are selected and placed on the mail object document in step 88 and the ad counter 72 is updated in step 90 to reflect that certain ads were used. It should be noted that similar ad selection processes can be used in selecting advertisements for display on a web page, as in a banner ad, and should not be limited simply to print advertisements.

The tables in FIGs. 6A-6E illustrate how ad affinity may be applied according to one embodiment of the invention. A basic ad list, sorted according to base priority, is shown in FIG. 6A. FIGs. 6B and 6D show a modified list sorted responsive to demographics known about the mail recipient. In the examples shown, FIG. 6B is a modified ad list targeted at a sixteen year old male; while FIG. 6D is a modified ad list targeted at a 35 year old female. Note, for instance, that the ads are skewed toward the interests of the particular demographic – FIG. 6B having two videogame listings in the top eight ads and FIG. 6D having the top two spots taken by clothing advertisements. FIGs. 6C and 6E show the modified list of FIGs. 6B and 6D, respectively, as further modified by ad affinity. In FIG. 6C, for instance, the VideoGame#2 ad was not rejected on affinity because the video game advertiser did not specify the rejection. However, the ClothingStore#1 ad was dropped from the list because the advertiser for

ClothingStore#2 chose not to be listed with another clothing advertisement. Similarly, in FIG. 6E, the ClothingStore#1 advertisement in the top spot specified an affinity rejection of the ClothingStore#2 advertisement which was dropped from the list and the remaining advertisements consequently are moved up on the list.

Turning back to FIG. 4, the selected advertisement IDs, any value-added content the message and the recipient's address are sent to the mail object builder 92 so that the various components can be arranged on a page. An example of how certain selected advertisements can be arranged on a page of a printed mail object is shown in FIG. 7A. Once the type and designated number of advertisements are selected, they are placed on the mail object which in this case comprises a standard sheet of letter sized paper. FIG. 7A shows three advertisements arranged about the space containing the text of the electronic message. FIG. 7B shows a full page ad view. FIG. 7C shows two half-page advertisements. And FIG. 7D shows one half page and two quarter page advertisements. Each position and size on the page can have an associated price that is applied to the mailing costs to supplement or completely eliminate the mailing costs required of the mail sender. Once arranged in a printable format, such as by constructing a file using any standard desktop publishing program, the mail object is sent along with a print order to the LPF designated in step 64.

FIG. 8 is an example of an LPF server, including a router 94 through which information is exchanged with the service pod 34 (FIG. 2) and mail object builder 92 (FIG. 4). An LPF server 96 includes a storage system on which advertisement graphics files are located associated with the advertisement ID numbers included with the mail object. Also included on LPF server is an attribute processor (not shown) that periodically queries over the network bus 98 the status and capabilities of the print server 100 and other external and internal attributes requested by the service pod 34. The print order from the mail object builder 92 (FIG. 4) is processed by the LPF server, including inserting advertisement and other graphics where indicated on the mail object document, to form a printable mail object. Such an object is sent to the print server 100 where it is shunted to one of the printers 102, 104 with the capability of printing the mail object as requested. Once printed out, the mail object is addressed and sealed in an envelope and carried to the local post office for delivery by normal land-based means to the intended mail recipient.

The LPF software will use all available techniques to achieve as much discounts as possible for each message. The messages will be sorted based on local delivery regulations and guidelines for maximum discounts and delivery accuracy. Such technologies are: CASS (Code Accuracy Support System) where each address is checked and verified to be a valid address, PAVE (Presort Accuracy, Validation, and Evaluation) to pre-sort the addresses for expedited

delivery and maximum discount, ACS (Address Correction Service), and NCOA (National Change of Address).

Now that the individual components of the Zairmail system have been described, attention is given back to FIG. 1. The mail sender 12 is serviced by the Zairmail system 14 by allowing electronically composed messages to be sent to a recipient who can receive physical mail but may not have the ability to receive the electronic message in its native form. "Frequent user points" may be awarded based upon the number of messages sent, where points can be exchanged later for other goods and services. The mail sender 12 interacts with advertisers 20 by viewing the ads selected for placement on the mail object. the sender has the option of previewing the ads and choosing if the ads should be sent or not to the recipients – thus, these ads are also viewed by the mail recipient 18. Should the receiver purchase products from the advertise responsive to advertising directed to the mail recipient at the mail sender's behalf, the mail sender can receiver additions "frequent user points" or gifts. The value-added content suppliers 22 gain exposure and, in some cases, payment for the content they provide while the Zairmail system 14 gains increased mail volume by providing more attractive content for its mail users. Advertisers 20 gain market data and impressions at their Web site while the Zairmail system gains ad content and, most importantly, exchanges ad exposure for money to supplement and sometimes exceed the costs of the printing and mailing costs.

In addition to using value-added content and artwork to drive volume, other promotional tools can be used. In one example, frequent mailer contests will award gifts to those users who mail at least a certain number of messages. In another example, each message sent through the system according to the invention can include a puzzle piece that can be collected and combined with other puzzle pieces to win a prize. This promotion can be applied to the mail sender as well.

Having described and illustrated the principles of the invention in a preferred embodiment thereof, it should be apparent that the invention can be modified in arrangement and detail without departing from such principles. We claim all modifications and variation coming within the spirit and scope of the following claims.

What is claimed is:

1. A mail delivery system for delivery of mail to a user's physical address comprising:

a storage device; and

a processor connected to the storage device,

the storage device storing:

a program for controlling the processor; and

a database containing attributes of a plurality of printing locations,

the processor operative with the program to receive an electronic message that includes message attributes including a message recipient and printing criteria;

determine a recipient physical address responsive to the message recipient attribute contained within the electronic message

compare the message recipient physical address with the plurality of printing locations;

query the printing locations having a desired set of attributes responsive to the printing criteria attributes contained within the electronic message;

select one of the printing locations; and

send the electronic message to the selected printing location.

2. The apparatus of claim 1, in which the processor is further operative with the program to:

receive replies from the printing locations responsive to the query; and

select one of the printing locations responsive to the replies.

3. The apparatus of claim 1, further including a database for storing a user record, said record having a counter measuring use of the mail delivery system and operative with a promotional program to effect awarding of prizes to the user.

4. The apparatus of claim 1, the database further including a plurality of advertisements, advertising attributes and recipient demographics, in which the processor is further operative with the program to:

compare the advertising attributes to the recipient demographics;

select at least one of the advertisements; and

attach the selected advertisements to the electronic message.

5. A method for converting an electronically generated message to a physical mail object to be delivered to a mail recipient's physical mail address, comprising:

5 accessing an intermediate node from a sender's node on a global communications network;

after accessing the intermediate node, transmitting information to the intermediate node including message, message recipient, and printing criteria;

10 locating in a database at the intermediate node the physical address information of the mail recipient;

querying a plurality of printing stations distributed across the global communications network;

generating at the intermediate node a printing instruction responsive to the information received from the sender's node; and

15 sending the printing instruction to a selected one of the printing stations responsive to the step of querying the plurality of printing stations.

6. The method of claim 5, wherein information from each of the printing stations is stored at the intermediate node.

7. The method of claim 5, wherein the printing station information includes the geographic location of the printing station.

8. The method of claim 5, wherein the printing station information includes a printing capability of the printing station.

9. The method of claim 5, wherein the printing station information includes a printing capacity of the printing station.

10. The method of claim 5, further including the steps of:
accepting bids from a plurality of advertisers having associated advertisements;
selecting advertisements based upon the bids; and
inserting the selected advertisements within the printing instruction.

delivering the printed message to the intended recipient.

12. The method of claim 11, wherein the step of querying includes calculating a goodness factor based in part upon a proximity of the plurality of distributed printing locations to the recipient physical address.

13. The method of claim 11, wherein the step of querying includes calculating a goodness factor based in part upon a capacity of the plurality of distributed printing locations.

14. The method of claim 11, wherein the step of querying includes calculating a goodness factor based in part upon a capability of the plurality of distributed printing locations.

15. The method of claim 11, wherein the step of querying includes calculating a goodness factor based in part upon a price per impression bid by the distributed printing locations.

sorting the ready state advertisements into a list according to their associated modified priority;

resorting the list according to ad affinity;
 selecting a subset of ads to be used from the resorted list; and
 printing the selected ads onto a printed medium delivered to the recipient.

- 5 17. The method of claim 16, wherein the step of resorting the list includes:
 associating an ad type with each advertisement on the list;
 comparing the ad type of a first ad on the list with the ad type of a second ad on the
 resorted list; and
 reordering the second ad on the resorted list if the first ad type is incompatible with the
 10 second ad type.

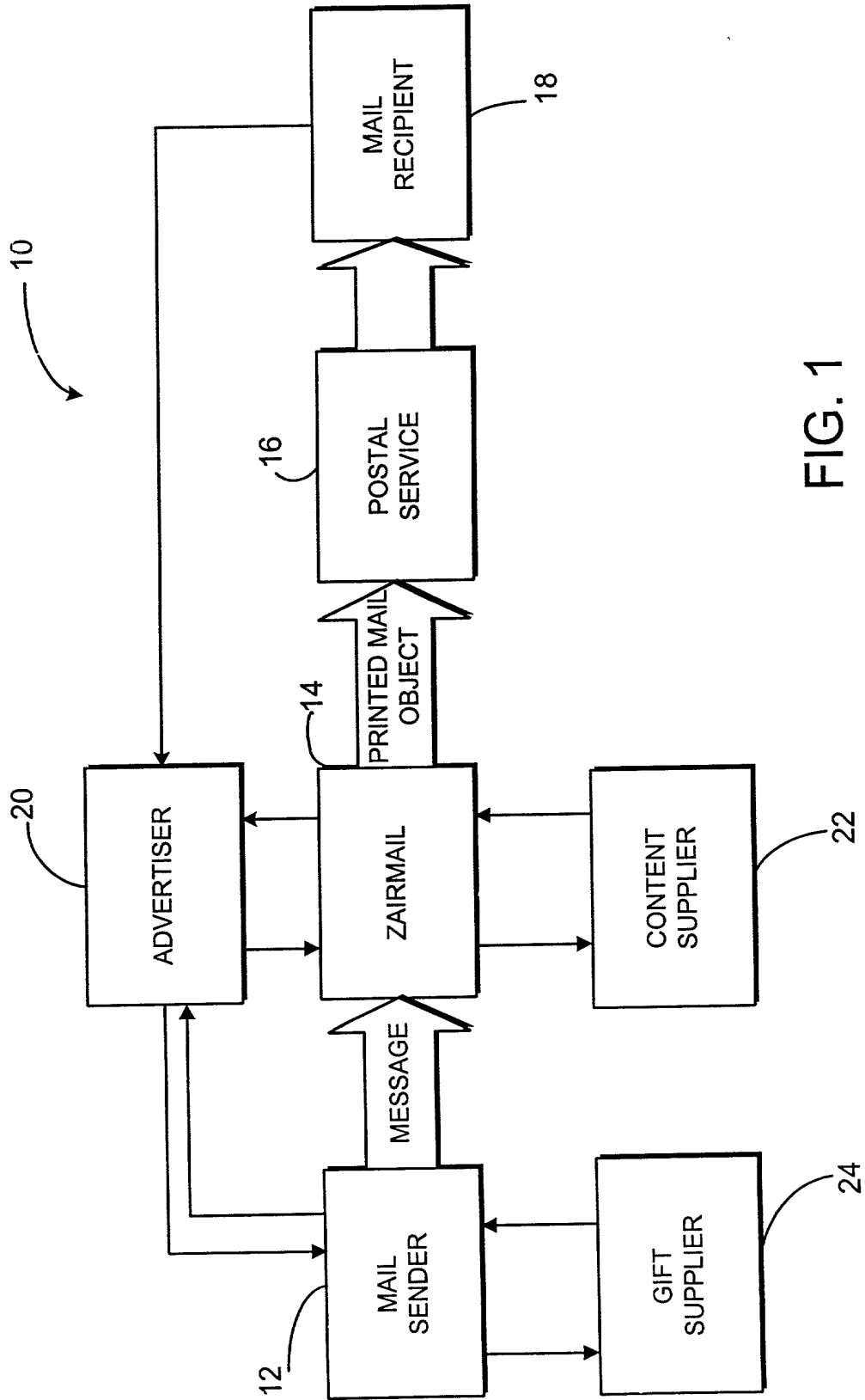
18. The method of claim 16, further including the steps of:
 accessing demographic information of the recipient; and
 modifying the base priority value responsive to the accessed demographic information.

[illegible]

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10

15





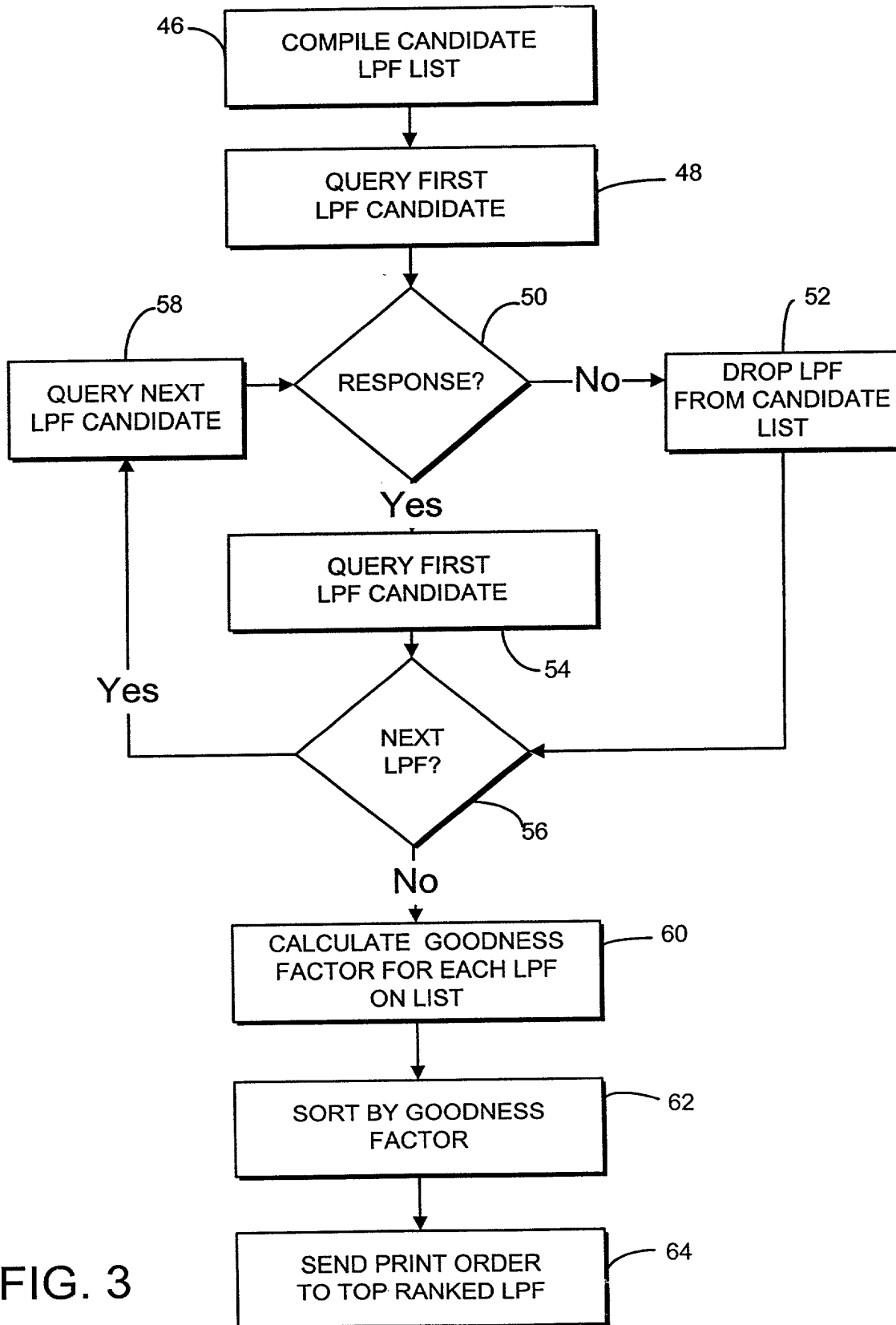
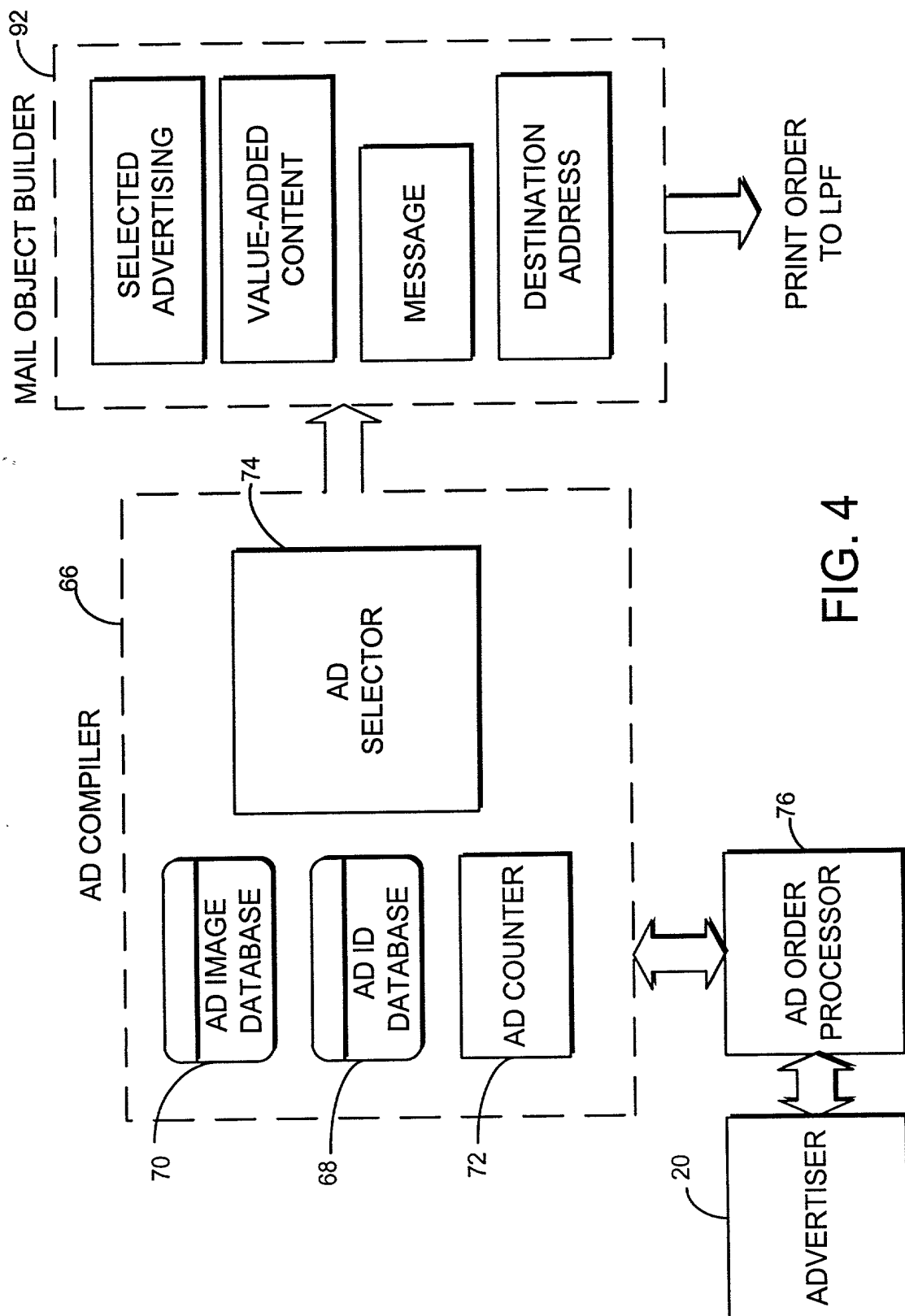


FIG. 3



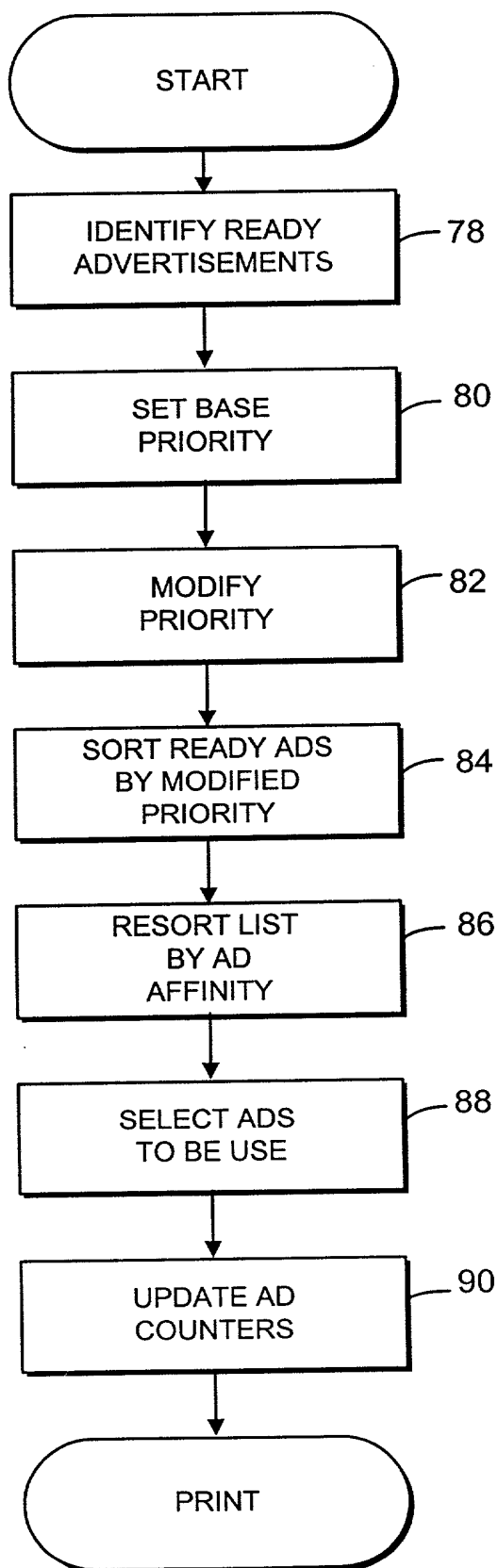


FIG. 5

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graph LR
    FIG6A[FIG. 6A] --> FIG6B[FIG. 6B]
    FIG6B --> FIG6C[FIG. 6C]
    FIG6A --> FIG6D[FIG. 6D]
```

FIG. 6A

AD LIST
(BASE PRIORITY)

1. CREDIT CARD AD
2. RENTAL CARD AD
3. AIRLINE TRAVEL AD
4. SOFTDRINK AD
5. CIGARETTES AD
6. VIDEOGAME AD
7. CLOTHES STORE AD #1
8. CLOTHES STORE AD #2
- .
- .
- .

FIG. 6B

AD LIST
(SORTED)

1. VIDEOGAMES AD
2. SOFTDRINK AD
3. CLOTHES STORE #2
4. CLOTHES STORE #1
5. VIDEOGAMES AD #2
6. RESTAURANT AD
7. CAR AD
8. COMPUTER AD
- .
- .
- .

FIG. 6C

AD LIST
(REORDERED)

1. VIDEOGAMES AD
2. SOFTDRINK AD
3. CLOTHES STORE #2
4. VIDEOGAMES AD #2
5. RESTAURANT AD
6. CAR AD
7. COMPUTER AD
8. CAR AD #2
- .
- .
- .

FIG. 6D

AD LIST
(SORTED #2)

1. CLOTHES STORE AD #1
2. CLOTHES STORE AD #2
3. CREDIT CARD AD
4. MAKEUP AD
5. JEWELRY AD
6. LONG DISTANCE PHONE SVC.
7. CIGARETTES AD
8. AIRLINE TRAVEL AD
- .
- .
- .

FIG. 6E

AD LIST
(REORDERED #2)

1. CLOTHES STORE #1
2. CREDIT CARD AD
3. MAKEUP AD
4. JEWELRY AD
5. LONG DISTANCE PHONE
6. CIGARRETTES AD
7. AIRLINE TRAVEL
8. SHOES AD
- .
- .
- .

35 YEAR OLD FEMALE

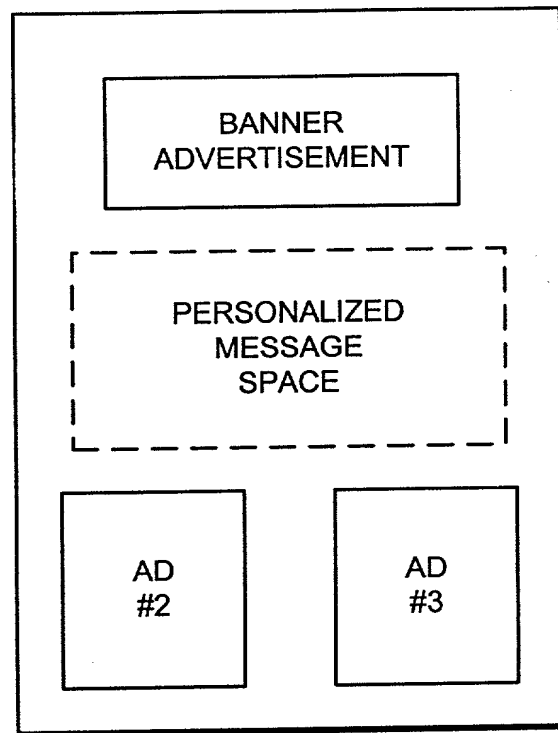


FIG. 7A

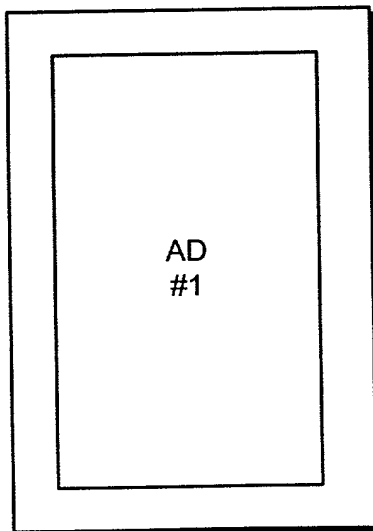


FIG. 7B

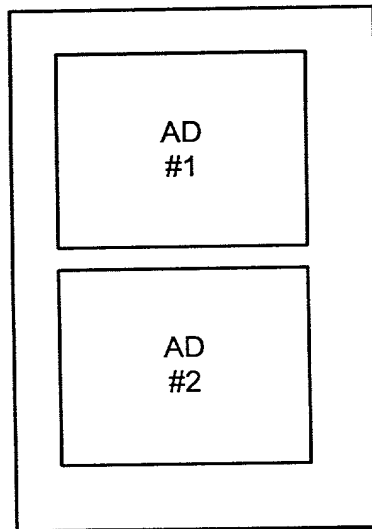


FIG. 7C

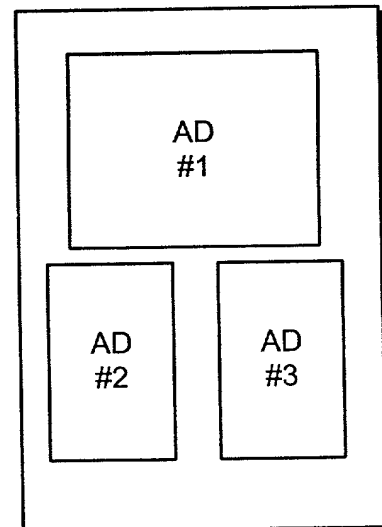
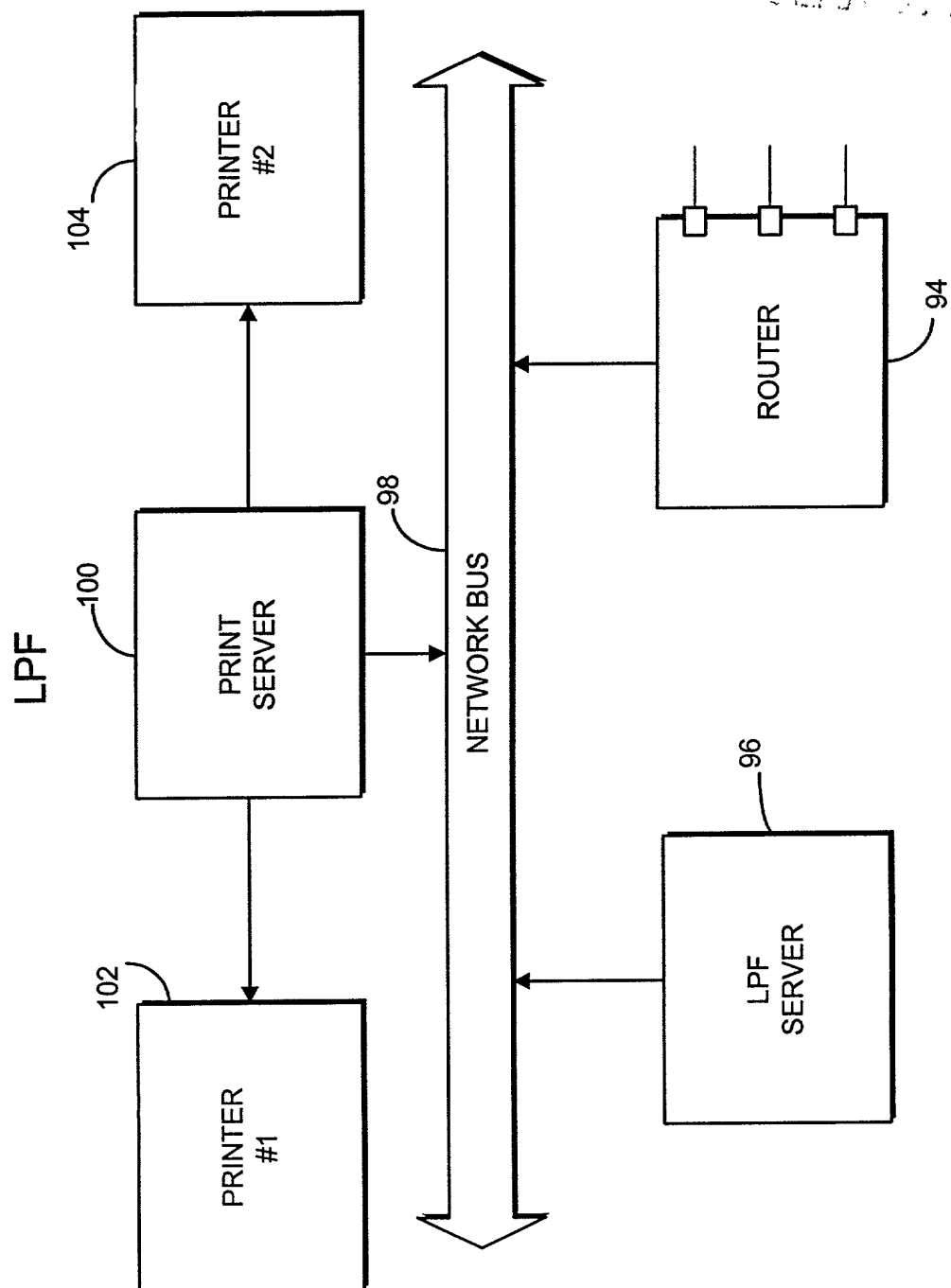


FIG. 7D


$$\frac{\infty}{E/G}$$

JUN 06 '00 02:40PM BLAKELY ET AL

Attorney's Docket No.: 004872.P001.US

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are, as stated below, next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed below) or any original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

DISTRIBUTED SYSTEM FOR CONDUCTING PHYSICAL DELIVERY MAIL SERVICE OVER THE INTERNET

the specification of which ☐ is attached hereto.was filed on March 17, 2000 as

United States Application Number

or PCT International Application Number

PCT/US00/07093

and was amended on

(if applicable) -

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claim(s), as amended by any amendment referred to above. I do not know and do not believe that the claimed invention was ever known or used in the United States of America before my invention thereof, or patented or described in any printed publication in any country before my invention thereof or more than one year prior to this application, that the same was not in public use or on sale in the United States of America more than one year prior to this application, and that the invention has not been patented or made the subject of an inventor's certificate issued before the date of this application in any country foreign to the United States of America on an application filed by me or my legal representatives or assigns more than twelve months (for a utility patent application) or six months (for a design patent application) prior to this application.

I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d), of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s):

APPLICATION NUMBER	COUNTRY (OR INDICATE IF PCT)	DATE OF FILING (day, month, year)	PRIORITY CLAIMED UNDER 37 USC 119
			<input type="checkbox"/> No <input type="checkbox"/> Yes
			<input type="checkbox"/> No <input type="checkbox"/> Yes
			<input type="checkbox"/> No <input type="checkbox"/> Yes

I hereby claim the benefit under Title 35, United States Code, Section 119(e) of any United States provisional application(s) listed below:

APPLICATION NUMBER	FILING DATE
60/125,260	March 19, 1999

004872.P001.US

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I hereby claim the benefit under Title 35, United States Code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

APPLICATION NUMBER	FILING DATE	STATUS (ISSUED, PENDING, ABANDONED)

I hereby appoint the persons listed on Appendix A hereto (which is incorporated by reference and a part of this document) as my respective patent attorneys and patent agents, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

Send correspondence to:

Aloysius T.C. AuYeung, Reg. No. 35,432, BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP

(Name of Attorney or Agent)

12400 Wilshire Boulevard, 7th Floor, Los Angeles, California 90025 and direct telephone calls to:

Aloysius T.C. AuYeung, (503) 684-6200.

(Name of Attorney or Agent)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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Inventor's Signature

Date

Residence

Citizenship

(City, State)

(Country)

P. O. Address

Full Name of Sixth/Joint Inventor (given name, family name)

Inventor's Signature

Date

Residence

Citizenship

(City, State)

(Country)

P. O. Address

JUN 06 '00 02:41PM BLAKELY ET AL

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Appendix A

I hereby appoint BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP, a firm including: William E. Alford, Reg. No. 37,764; Farzad E. Amini, Reg. No. 42,261; Amy M. Armstrong, Reg. No. 42,265; Aloysius T. C. AuYeung, Reg. No. 35,432; William Thomas Babbitt, Reg. No. 39,591; Carol F. Barry, Reg. No. 41,600; Jordan Michael Becker, Reg. No. 39,602; Bradley J. Berezna, Reg. No. 33,474; Michael A. Bernadacou, Reg. No. 35,934; Roger W. Blakely, Jr., Reg. No. 25,831; R. Alan Burnett, Reg. No. 46,149; Gregory D. Caldwell, Reg. No. 39,926; Ronald C. Card, Reg. No. 44,587; Thomas M. Coester, Reg. No. 39,637; Donna Jo Coningsby, Reg. No. 41,684; Michael Anthony DeSanctis, Reg. No. 39,957; Daniel M. De Vos, Reg. No. 37,813; Robert Andrew Diehl, Reg. No. 40,992; Matthew C. Fagan, Reg. No. 37,542; Tarek N. Fahmi, Reg. No. 41,402; George L. Fountain, Reg. No. 36,374; Paramita Ghosh, Reg. No. 42,806; James Y. Go, Reg. No. 40,621; James A. Henry, Reg. No. 41,064; Willmore F. Holbrow III, Reg. No. 41,845; Sheryl Sue Holloway, Reg. No. 37,850; George W. Hoover II, Reg. No. 32,992; Eric S. Hyman, Reg. No. 30,139; William W. Kidd, Reg. No. 31,772; Sang Hui Kim, Reg. No. 40,450; Walter T. Kim, Reg. No. 42,731; Eric T. King, Reg. No. 44,188; Erica W. Kuo, Reg. No. 42,775; Joseph Lutz, Reg. No. 43,765; Michael J. Mallie, Reg. No. 36,591; Paul A. Mendonsa, Reg. No. 42,879; Clive D. Menezes, Reg. No. 45,493; Darren J. Milliken, Reg. No. 42,004; Chun M. Ng, Reg. No. 36,878; Thien T. Nguyen, Reg. No. 43,835; Thinh V. Nguyen, Reg. No. 42,034; Dennis A. Nicholls, Reg. No. 42,036; Lisa A. Norris, Reg. No. 44,976; Daniel E. Ovanezian, Reg. No. 41,236; William F. Ryann, Reg. No. 44,313; James H. Salter, Reg. No. 35,668; William W. Schaal, Reg. No. 39,018; James C. Scheller, Reg. No. 31,195; Jeffrey S. Smith, Reg. No. 39,377; Maria McCormack Sobrino, Reg. No. 31,639; Stanley W. Sokoloff, Reg. No. 25,128; Judith A. Szepesi, Reg. No. 39,393; Vincent P. Tassinari, Reg. No. 42,179; Edwin H. Taylor, Reg. No. 25,129; Joseph A. Twarowski, Reg. No. 42,191; Lester J. Vincent, Reg. No. 31,460; Glenn E. Von Tersch, Reg. No. 41,364; John Patrick Ward, Reg. No. 40,216; Charles T. J. Weigell, Reg. No. 43,398; James M. Wu, Reg. No. 45,241; Steven D. Yates, Reg. No. 42,242; and Norman Zafman, Reg. No. 26,250; my attorneys; and Andrew C. Chen, Reg. No. 43,544; Justin M. Dillon, Reg. No. 42,486; and John F. Travis, Reg. No. 43,203; my patent agents, with offices located at 12400 Wilshire Boulevard, 7th Floor, Los Angeles, California 90025, telephone (714) 557-3800, with full power of substitution and revocation, to prosecute this application and to transact all business in the Patent and Trademark Office connected herewith.

JUN 06 '00 02:41PM BLAKELY ET AL

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Title 37, Code of Federal Regulations, Section 1.56 Duty to Disclose Information Material to Patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§ 1.97(b)-(d) and 1.98. However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) Prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) The closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made or record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office, or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

ARTICLE 20 FOLDER UNAVAILABLE

DATE

07/10/00

APPLICATION NO.

09/541306

WHEN WE CHECKED THE SHELVES, NEITHER AN ARTICLE 20 FOLDER
NOR A GREEN CHARGE CARD WERE PRESENT FOR THIS APPLICATION.
THE GREEN CHARGE CARD FROM THIS APPLICATION HAS BEEN IN-
SERTED IN THE PROPER LOCATION ON THE SHELVES.

CA

CONTRACTOR REP

07/10/00

DATE

004020-9007300